

AMENDED CLAIM SET:

1. (currently amended) A plasma processing method comprising:

supporting a substrate to be opposed to an electrode;
setting a variable frequency of high frequency power $f(\text{Hz})$;
providing a plasma processing gas, wherein said plasma processing gas is a mixture gas of an inert gas group and a reactant gas group, wherein said reactant gas group at least contains a gas including silicon atoms or a halogen base gas;

setting a variable partial pressure of [[a]] said reactant gas group $P_r(\text{Torr})$;

setting the plasma processing gas to pressure $P(\text{Torr})$ where $P(\text{Torr})$ satisfies the following relationship

$$P_L(\text{Torr}) \leq P(\text{Torr}) \leq 3.5 \times P_L(\text{Torr})$$

$$P_L(\text{Torr}) \leq P(\text{Torr}) \leq P_H(\text{Torr})$$

wherein the plasma processing gas is a mixture gas of a reactant gas including gases selected from the group consisting of gases containing silicon atoms and halogen base gases with an inert gas, and the pressure $P_L(\text{Torr})$ is a higher pressure of either one represented by the following relationship

$$P_L(\text{Torr}) = 5 \times P_r(\text{Torr}) \text{ or}$$

$$P_L(\text{Torr}) = 2 \times 10^{-7}(\text{Torr}/\text{HZ}) \times f(\text{HZ})$$

and the pressure P_H (Torr) is a lower one of pressures represented by the following relationships

$$\underline{P_H(\text{Torr}) = 3.5 \times P_L(\text{Torr}) \text{ and}}$$

$$\underline{P_H(\text{Torr}) = 500(\text{Torr});}$$

and an inert gas;

supplying high frequency power between the electrode and a holder to generate plasma between the electrode and the substrate on the basis of [[a]] said plasma processing gas; and

performing high rate plasma processing on the substrate utilizing the generated plasma.

2. - 6. (cancelled).

7. (currently amended) The plasma processing method according to claim 1 [[2]], wherein said the inert gas is group contains a He gas.

8. (currently amended) The plasma processing method according to claim 1, wherein said reactant gas group contains a gas including silicon atoms, and the plasma processing method is one for performing high rate film forming processing on the substrate.

9. (currently amended) The plasma processing method of claim 1, wherein said reactant gas group contains a halogen base gas, and the plasma processing method is one for performing high rate etching on the substrate.

10. (cancelled).

11. (new) The plasma processing method according to claim 8, wherein said gas including silicon atoms is SiH_4 or Si_2H_6 .

12. (new) The plasma processing method according to claim 9, wherein said halogen base gas is SF_6 , CF_4 , C_2F_6 , C_3F_8 , CCl_4 , or PCl_3 .